Please replace the paragraph beginning at page 1, line 7, with the following rewritten paragraph:

In recent years, due to digitalization of television broadcasting, various needs or services which have been beyond imagination in general broadcasting are beginning to emerge. As to a channel which only broadcasts movie programs, for example, a technology of copy guard is important to protect a copyright so as not to allow an unlimited copy on the receiver. Recently, therefore, it was proposed to multiplex information such as copy guard into a digital broadcast wave as additional information and to carry the copy guard in the wave so as to allow the receiver to utilize the same. Such additional information is classified according to a standard such as CGMS (IEC1880) and WSS (ETS300, 294). As to methods how to utilize the additional information, various methods are now under consideration.

Please replace the paragraph beginning at page 2, line 13, with the following rewritten paragraph:

FIG. 8 shows a block diagram which is an exemplary conventional television signal processor 100. The television signal processor shown in FIG. 8 is formed by a decoding part 101, a CPU interface (hereinafter, referred to as CPUI/F) 103, a RAM interface (hereinafter, referred to as RAMI/F) 105, video data reading part 106, OSD data reading part 107, a horizontal/vertical synchronous pulse generating part 108, a video data line buffer 109, an OSD data line buffer 110, combining part A 111, a CGMS timing generating part 112, a CGMS data buffer 113 and a combining part B 114.

Please replace the paragraph beginning at page 2, line 22, with the following rewritten paragraph:

The decoding part 101 generates video data by processing an inputted video stream, and then outputs the same to a work RAM 102 through the RAMI/F 105. The work RAM 102 stores the video data. Referring to FIG. 8, a CPU 104 shown outside the conventional television signal processor generates OSD data. Herein, OSD (On Screen Display) stands for a channel, a receiving mode, a volume, characters of text broadcasting and the like displayed on a currently operating television screen. The OSD is generated on the basis of the OSD data generated by the CPU 104. The OSD data generated by the CPU 104 is inputted to the work RAM 102 through the CPUI/F 103 and the RAMI/F 105. The work RAM 102 stores the inputted OSD data.

Please replace the sub-heading beginning at page 5, line 4, with the following rewritten sub-heading:

SUMMARY OF THE INVENTION

Please replace the paragraph beginning at page 5, line 5, with the following rewritten paragraph:

The present invention has, in order to attain the aforementioned object, the following features.

Please replace the paragraph beginning at page 5, line 7, with the following rewritten paragraph:

A first aspect of the present invention is directed to a television signal processor processing a received broadcast wave and generating a television signal. The processor comprises:

Please replace the paragraph beginning at page 6, line 19, with the following rewritten paragraph:

A7 A second aspect of the present invention, which is an aspect dependent on the first aspect, is characterized in that the broadcast wave is a digital broadcast wave.

Please replace the paragraph beginning at page 6, line 22, with the following rewritten paragraph:

A7' A third aspect of the present invention, which is an aspect dependent on the first aspect, is characterized in that the timing control part includes:

Please replace the paragraph beginning at page 7, line 3, with the following rewritten paragraph:

a reference part for referring to the memory part for timing information corresponding to the standard detected by the standard detecting part, and supply the same to the reading part,

A8 the reading part respectively reads the video data, the additional information, and the OSD data from the storage part at timing corresponding to the timing information supplied form the reference part.

Please replace the paragraph beginning at page 7, line 18, with the following rewritten paragraph:

A9 A fourth aspect of the present invention, which is an aspect dependent on the third aspect, is characterized in that the memory part includes:

28

A

Please replace the paragraph beginning at page 8, line 14, with the following rewritten paragraph:

A fifth aspect of the present invention, which is an aspect dependent on the first aspect, is characterized in that the television signal processor further comprises a level converting part for converting an output level of the additional information read by the reading part, and

Please replace the paragraph beginning at page 8, line 25, with the following rewritten paragraph:

A sixth aspect of the present invention, which is an aspect dependent on the fifth aspect, is characterized in that the level converting part converts the output level of the additional information into a level determined according to the standard detected by the standard detecting part.

Please replace the sub-heading beginning at page 10, line 10, with the following rewritten sub-heading:

Detailed Description of the Invention

Please replace the paragraph beginning at page 10, line 11, with the following rewritten paragraph:

FIG. 1 shows a block diagram which is an example of a set top box comprising a television signal processor according to an embodiment of the present invention. Referring to FIG. 1, an antenna 1 receives digital broadcast waves. A frequency selection part 2 selects any broadcast wave of a specific frequency from the broadcast waves received in the antenna 1, and outputs the same to a demodulating part 3. The demodulating part 3 demodulates the broadcast

wave selected by the frequency selection part 2, and outputs the same to a transport decoder 4. In the signal demodulated by the demodulating part 3, a video stream, an audio stream, additional information, and other types information are multiplexed in a time-divisional manner. The signal outputted by the demodulating part 3 is called a transport stream. In the transport stream, the transport decoder 4 respectively separates the video stream, the audio stream, the additional information and other types of information which are multiplexed in a time-division manner. Thereafter the video stream is outputted to a video decoder 200 (a television signal processor 200 corresponding to a first embodiment of the present invention), the audio stream is outputted to an audio decoder 8 and the additional information Ss is outputted to a CPU 7 respectively. Copy generation control and copy guard are performed on the basis of the additional information (CGMS, WSS or the like). Further, the CPU 7 generates OSD (On Screen Display) data So, and outputs this OSD data So and the above additional information Ss to a video decoder through a data bus 11 . Here, OSD (On Screen Display) stands for a channel, a receiving mode, a volume, characters of text broadcasting and the like displayed on a currently operating television screen. The OSD is generated on the basis of the OSD data So generated by the CPU 7. Elements 5 and 6 represent a work RAM and a main storage part, respectively. A work RAM 202 is described later along with the television signal processor 200.

Please replace the paragraph beginning at page 17, line 3, with the following rewritten paragraph:

An exemplary operation of the additional information recognizing part 203 is now described with reference to the block diagram shown in FIG. 2 showing the television signal processor 200 and a flowchart shown in FIG. 3.

Please replace the paragraph beginning at page 17, line 7, with the following rewritten paragraph:

FIG. 3 is a flowchart showing an operation related to target value selection performed by the additional information recognizing part 203 for reading the video data Sv, the OSD data So, and the additional information Ss from work RAM 202 in FIG. 2, and a operation related to broadcast wave standard notice performed with respect to the additional information synthetic position deciding part 210 when the additional information is multiplexed into the broadcast wave.

Please replace the paragraph beginning at page 17, line 16, with the following rewritten paragraphs:

First, the additional information Ss, the OSD data So, and the broadcast wave information Sb are inputted to the additional information recognizing part 203 (Step S1). The additional information recognizing part 203 stores the inputted additional information Ss and broadcast wave information Sb (Step S2). Then, the additional information recognizing part 203 outputs the additional information Ss and the OSD data So to the work RAM 202 through the RAMI/F 204 (Step S3). The additional information recognizing part 203 recognizes a standard of the broadcast wave on the basis of the broadcast wave information Sb (Step S4). The additional information recognizing part 203 can also recognize a change of the standard of the broadcast wave through the inputted broadcast wave information Sb. In Step S5, whether or not the broadcast wave standard has changed is determined. If the broadcast wave standard has changed, the operation returns to the step S1. If the broadcast wave standard has not changed, the additional information recognizing part 203 stores the broadcast wave standard of the currently selected broadcast wave (Step S6).

The additional information recognizing part 203 comprises therein the ROM 212. The ROM 212 stores a plurality of target values, which are reported by the additional information recognizing part 203 to the reading part so that the reading part reads data from the work RAM

202. When recognizing the standard of the broadcast wave, the additional information recognizing part 203 refers to the ROM 212 and selects the target value corresponding to the standard of the broadcast wave (Step S7). The selected target value is reported to the video data reading part 205 and the OSD data reading part 206 (Step S8). Then, whether or not the additional information Ss was inputted is determined (Step S9). When the additional information Ss is inputted, the additional information recognizing part 203 notifies the additional information synthetic position deciding part 211 of the standard of the broadcast wave (Step S10). If the additional information Ss is not inputted, the operation is terminated.

Please replace the paragraph beginning at page 18, line 25, with the following rewritten paragraph:

With reference to FIG. 4, FIG. 5 and FIG. 6, the timing of the television signal processor of this embodiment for starting the combination of the additional information at a retrace interval of video information is described. Here, two video standards for transmitting the additional information, i.e., 480I (hereinafter referred to as video standard 480I) and 480P whose horizontal frequency is twice that of the video standard 480I (hereinafter referred to as video standard 480P) are described.

Please replace the paragraph beginning at page 20, line 1, with the following rewritten paragraphs:

FIG. 6 shows on which positions additional information CGMS multiplexed into the video standard 480P and additional information WSS multiplexed into the video standard 480I are combined with respect to horizontal synchronous pulses respectively. Two waveform diagrams shown in FIG. 6 each have different scales with respect to a time axis t (μs), and hence broken lines in the figure indicate which point corresponds to which for convenience in writing. Referring to FIG. 6, a synthetic position for both of the additional information CGMS and the

additional information WSS is based on t= 0, where a trailing edge of the horizontal synchronous pulses is located. For the additional information CGMS, synthetic operation is started from t = 11.2 (μs). For the additional information WSS, synthetic operation is started from t = 11.0 (μs).

A16 cont'd

Further, FIG. 6 shows a peak voltage for each of the additional information CGMS and the additional information WSS. These waveforms and peak voltages are set according to a standard. In the case of the video standard 480P and the video standard 480I, for example, the voltage of a white level at which white is displayed on a television screen is 700 mV. Further, the peak level of the additional information CGMS in the video standard 480P is 490 mV, and the peak level of the additional information WSS of the video standard 480I is set to be 500 mV.

Please replace the paragraph beginning at page 21, line 23, with the following rewritten paragraph:

A17

In the effective display area, OSD data So read by the OSD data reading part 206 is first inputted in the level converting part 303. The additional information recognizing part 301 outputs the OSD color conversion information generated by itself to the level converting part 303. On the basis of the inputted OSD color conversion information, the level convertor 303 converts the OSD data So and outputs the same to the combining part 209 in order to display the OSD data So on the screen of a television. The combining part 209 combines the color-converted OSD data So and video data Sv read by the video data reading part 205.

Please replace the paragraph beginning at page 22, line 9, with the following rewritten paragraph:

A17' cont

At the retrace interval, on the other hand, the additional recognizing part 301 can recognize the standard of a broadcast wave on the basis of the inputted broadcast wave information Sb. In the ROM 302, in addition to the target values stored in the additional information recognizing part 203 in the first embodiment, information relevant to the output level

A

of additional information Ss previously determined according to a standard of the broadcast wave is stored. When the additional information recognizing part 301 recognizes the standard of the broadcast wave, therefore, the additional information recognizing part 301 refers to the ROM 302 and can select the output level corresponding to the standard of the additional information Ss. This is because the output level of the additional information Ss is determined according to a standard. The additional information recognizing part 301 notifies the level converting part 303 about the selected output level of the additional information Ss.

Please replace the paragraphs beginning at page 23, line 1 and ending at page 23, line 19, with the following rewritten paragraphs:

In the level converting part 303, an output level notice of the additional information Ss selected by the additional information recognizing part 301 and the additional information Ss read by the additional information reading part 207 are inputted. The level converting part 303 receives the output level of the additional information Ss notified by the additional information recognizing part 301, converts the same to the output level of the additional information CGMS or the additional information WSS shown in FIG. 6, for example, and outputs the same to the combining part 209. The combining part 209 combines in the additional information Ss whose output level has been converted in the interval, while combining the OSD data So and the video data Sv at an effective display interval and outputting the same as a video signal.

The present invention can be employed for a television signal processor which can process a received broadcast wave and combine video data, OSD data and additional information regularly in a proper state.

IN THE CLAIMS

Please amend claims 1-6 as follows.